Claims

[c1] 1.An electric machine with cooling rings, comprising:

a housing;

a stator core disposed within the housing and having at least one end-turn extending beyond an end of the stator core, the end-turn being potted with a potting material;

a rotor rotatably positioned within the stator core;

a non-laminated thermal conductor ring having a thermal conductivity that is greater than a thermal conductivity of the potting material disposed between the potted stator core end-turn and the housing for conducting heat from the stator core end-turn to the housing.

[c2] 2.The electric machine of claim 1 , wherein the housing has a coolant fluid circulated therein.

[c3] 3.The electric machine of claim 1 , wherein the thermal conductor ring is a metallic thermal conductor ring disposed between the potted stator core end-turn and the housing.

[c4] 4.The electric machine of claim 3 , wherein the metallic thermal conductor ring is an aluminum ring disposed between the potted stator core end-turn and the housing.

[c5] 5.The electric machine of claim 3 , wherein the metallic thermal conductor ring is an aluminum alloy ring disposed between the potted stator core end-turn and the housing.

[c6] 6.The electric machine of claim 1 , wherein the thermal conductor ring is a non-metallic thermal conductor ring disposed between the potted stator core end-turn and the housing.

[c7] 7.The electric machine of claim 1 , wherein the thermal conductor ring further comprises an outer face thereof disposed against an inner surface of the housing.

[c8] 8.The electric machine of claim 7 , wherein the outer face of the thermal

conductor ring is pressed fit against the inner surface of the housing.

[c9] 9.The electric machine of claim 8 , wherein the housing is shrink fitted against the outer face of the thermal conductor ring.

[c10] 10.The electric machine of claim 1 , wherein the thermal conductivity of the thermal conductor ring is at least 90 BTU/hr ft degree F.

[c11] 11.The electric machine of claim 1 , wherein the thermal conductivity of the thermal conductor ring is at least 300 times greater than the thermal conductivity of the potting material.

[c12] 12.The electric machine of claim 1 , further comprising a space defined between the potted stator end-turn and the thermal conductor that is filled with the potting material.

[c13] 13.The electric machine of claim 1 , wherein the potting material is a flexible potting material.

[c14] 14.The electric machine of claim 13 , wherein the flexible potting material is an elastomeric potting material.

[c15] 15.The electric machine of claim 13 , wherein the flexible potting material is a viscoelastic potting material.